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5.16 CULTURAL RESOURCES

Cultural resources in the general project area include historic and prehistoric archaeological sites, historic architectural and engineering features and structures, and resources of traditional cultural significance to Native Americans and other groups. This section analyzes the Tesla Power Project's (TPP's) potential effects to cultural resources within the TPP area of potential effect (APE). For the purposes of this analysis, the TPP APE is defined as an area 0.25 miles around the power plant site and 65 feet to either side of the natural gas pipeline, water supply pipeline, and electrical transmission line. Background information is provided for a broader area.

5.16.1 Affected Environment

Cultural resources are the traces of human occupation and activity that, in northern California, extend back in time for at least 11,500 years. Archaeologists have reconstructed general trends of prehistory. Written historical sources tell the story of the past 200 years. A cultural resources inventory of the project area has not located cultural resources within the project APE. Contact with the Native American Heritage Commission (NAHC) did not result in identification of traditional cultural properties in the project area.

The TPP is located in the foothills of the Diablo Range separating the Central Valley of California from the San Francisco Bay area, southeast of Altamont Pass and north of the Pacific Gas and Electric Company's Tesla substation. This rural agricultural area is expected to experience rapid residential and commercial development as the planned community of Mountain House is built over the next several years. The TPP area elevations range from 130 feet at the northeast end of the natural gas pipeline end to about 400 feet above sea level at the power plant site itself. The dominant hydrological feature is the Old River, approximately five miles to the northeast, which is an important tributary to the San Joaquin River. Much of the region adjacent to the Old River was probably wetlands or marsh; the project area itself was probably grassland. Today little native vegetation remains. Some of the cultural resources in the area have been disturbed or eliminated by past agricultural practices and urban development characteristic of late 20th Century population growth of Delta towns and cities as bedroom communities to major San Francisco Bay Area cities. Overall, the immediate project area is one of low to moderate archaeological sensitivity that is embedded within the larger San Joaquin Delta region, which is of moderate to high archaeological sensitivity.

5.16.1.1 Prehistoric Background

This section discusses general trends in California prehistory. Section 5.16.1.2 discusses the history of archaeological research in west-central California. Section 5.16.1.3 presents the results of archival research and archaeological field surveys conducted for this project.

The general trend throughout California prehistory was the increase in population density over time, coupled with greater sedentism and the use of a greater diversity of food resources. Chartkoff and Chartkoff (1984) identified three major periods of prehistory observed throughout California: Pre-Archaic, Archaic, and Pacific. These patterns are roughly

correlated with the Paleoindian, Archaic, and Emergent periods, developed by Fredrickson (1994) for west-central California. As Chartkoff and Chartkoff observe, culture change occurred in different ways and at different times throughout California. These changes nevertheless followed a broad pattern, outlined below.

Pre-Archaic Period [Prior to 11,000 years before present (BP)]. Evidence throughout California and the western United States generally suggests that Pre-Archaic (or Paleoindian) populations were small and their subsistence economies included the capture of big game, such as now-extinct large Pleistocene mammals including mammoth and mastodon. Recent research in the Great Basin, which offers better preservation of Pre-Archaic sites than does California, indicates that the economies of the Pre-Archaic peoples of the far western United States were based on a wide-ranging hunting and gathering strategy, dependent to a large extent on local lake-marsh habitats (Willig, 1988).

Large, fluted lanceolate projectile points known as Clovis points, which are the most widely recognized markers for this time period, have been found in the Clear Lake locality at the Borax Lake Site to the north of the project area (Meighan and Haynes 1970), the Tulare Lake Basin to the south (Wallace and Riddell, 1988), and sporadically elsewhere in the state. There are no known Pre-Archaic sites from the Bay area.

Early to Middle Archaic Period (11,000–6,000 years BP). During the Early and Middle Archaic periods, northern California prehistoric cultures, as elsewhere, began to put less emphasis on large game hunting. Subsistence economies probably diversified somewhat, and Archaic-era people may have begun to use certain ecological zones, such as the coast littoral, more intensively than before. Advances in technology, such as the advent of milling stones, indicate that new food processing methods became important during the Archaic, enabling more efficient use of certain plant foods, including grains and plants with hard seeds. A model of early Holocene adaptation devised for the eastern Great Basin (Price and Johnston, 1988) may be applicable to California. According to this model, this was a period of gradual warming and drying that supported a specialized economy based largely on marsh, lake, and stream resources. It supported higher population densities and a greater degree of sedentism than the Pre-Archaic period.

The earliest Archaic sites from west-central California are from the Los Vaqueros Reservoir area in eastern Contra Costa County, where two sites have recently produced artifact assemblages and human burials dated between 9,870 and 6,600 years BP. Prior to the Los Vaqueros excavations, Early to Middle Archaic deposits in the Bay-Delta areas were limited to isolated human burials. No sites dating to these periods have been found in the immediate project vicinity. However, the lack of sites from these periods may reflect the alluvial environment as well as the extensive urban development that may have destroyed or covered over sites. It is possible that as yet undiscovered Early and/or Middle Archaic sites lie deeply buried or lie beneath existing paved and landscaped surfaces in the project area.

Late Archaic Period (6,000–4,000 years BP). One important technological advance during the Late Archaic was the discovery of a process for removing the tannins from acorns, which

made it possible to exploit this abundant and nutritious, though labor intensive, resource (Chartkoff and Chartkoff, 1984). Prehistoric trade networks also began to diversify and develop during the Late Archaic, bringing raw materials and finished goods from one region to another. Resource exploitation during this period, as well as during the Early and Middle Archaic, was generally seasonal. Bands moved between established locations within a clearly defined and defended territory, scheduling the harvest of particular resources according to the time of their availability. Aggregations of food resources, such as occurred at the shores of a large body of water or along a major fish-producing river, allowed for larger aggregations of people, at least seasonally. Dispersed resources, for example, large and small mammalian game during the winter, meant dispersal across the landscape into small family groups for more efficient food harvesting. The spear thrower (atl-atl) may have been introduced or increased in importance during this period, accounting for the change in projectile point styles from the Western Stemmed series to the Pinto and Humbolt series, which are generally stemmed or have indented bases, or both. There was also an increase in the importance of seed grinding (Price and Johnston, 1988).

It appears that the shell mound sites along San Francisco Bay were first occupied during the Late Archaic. Shell mound sites excavated in the immediate project vicinity contain Late Archaic components. Most of these sites have produced intact human burials and a great variety of artifacts, a reflection of the diverse subsistence practices. Acorns and other nut and berry crops appear to have been the primary plant resources targeted during this period. At sites along the Bay, the abundant remains of marine animals, including shellfish, fish, and mammals, reflect the occupants' early adaptation to the marine and bayshore estuarine environment. Obsidian from the North Coast Ranges and eastern Sierra also appears at these sites, reflecting the early existence of extensive trade networks.

Early and Middle Pacific Periods (4,000–1,500 years BP). According to Chartkoff and Chartkoff (1984), the beginning of the Pacific Period is marked by the advent of acorn meal as the most important staple food resource for most California Indians. Increasing population densities throughout the period made it desirable and necessary for California populations to produce more food from available land and to seek more dependable food supplies. The increasing use of food processing techniques, such as seed grinding and acorn leaching, developed during the Archaic, allowed for the exploitation of more dependable food resources. Increasing use of previously neglected ecological zones may also have been part of this trend.

Late and Final Pacific Period (1,500 years BP-Historic Era). A.D. 500 (1,500 years BP) is a cultural watershed throughout California. Sometime near this date, the bow and arrow replaced the spear thrower and dart as the hunting tool and weapon of choice. The most useful markers for this period tend to be the small projectile points used as arrow tips. The date of bow and arrow introduction is a point of some controversy, but most authors place it between A.D. 500 and 600. Others believe bows and arrows were introduced as early as A.D. 250 (750 years BP) or as late as A.D. 700 (1,300 years BP; Bennyhoff and others, 1994).

During the Final Pacific Period, populations became increasingly sedentary and dependent on stored staple foods. Staple foods were stored for the winter in permanent settlements with populations as high as 1,000 persons. At the same time, there is evidence of continued diversification of the resource base. By the Final Pacific Period, every available ecological niche was exploited, at least on a seasonal basis. There was full exploitation of the marine/estuarine zone and further development of long distance trade networks and more complex social and political systems.

Late and Final Pacific period sites are generally well-developed midden deposits, some with surface components. The midden deposits contain both cremated and intact human burials and residential features, including house floors, reflecting the increasingly sedentary populations. Bedrock mortar milling stations were first established in the Bay area around 1,300 years ago. Although portable mortars and pestles continued to be used, smaller specimens were preferred. Changes in the size of ground stone tools reflect the dramatic increase in the use of small-seeded plant resources. Olivella and clamshell disc beads, frequently found in burials, appear to have been manufactured on site. Small unmodified obsidian pebbles and large flake blanks were imported almost exclusively from the Napa Valley. There is evidence that, during this period, inhabitants of the Bay area had well-established trade relations with the Yurok, the Yokut, the Maidu, the Miwok, and several other interior groups. This period has its end in the late 18th century with the arrival of Euroamericans in the project area.

5.16.1.2 Archaeology and Archaeological Sensitivity of the Project Area

Ethnographic Background

The TPP is located within the territory associated with the ethnographic and historic boundaries of the *Julpun* tribelet of the Bay Miwok and the *Jalalon*, *Nochochomne*, and *Asirin* tribelets of the Northern Valley Yokuts (Figure 5.16-1). Maps of ethnographic and historic tribal boundaries are provided by Bennyhoff (1994:Map 2), (1926:137), Levy (1978), and Wallace (1988). For the most part, the TPP area appears to have been within Northern Valley Yokuts territory—a group that entered the San Joaquin drainage to displace Costanoans and/or Miwok groups (Wallace, 1988). The Diablo range, which separates the Central Valley from San Francisco Bay area is generally considered to be the dividing line between the Ohlone and the Yokuts, although resources in the range were utilized by both groups.

Each Bay Miwok tribelet occupied a specific territory, using several more or less permanently inhabited settlements and a larger number of seasonal campsites at various times during their annual subsistence round (Levy, 1978). The Northern Valley Yokuts relied on fishing and fowling and the harvesting of wild plant foods including tule roots (Wallace, 1988). In historic times, the Yokuts trekked to Monterey Bay in Costanoan territory (Wallace, 1988) and also traded with the Miwok and Costanoan.

The main trading partners with the Costanoans were the Plains Miwok, Sierra Miwok, and Yokuts. The Costanoans supplied the Yokuts with mussels, abalone shell, and dried abalone; they supplied the Sierra Miwok with olivella shell; they supplied the Plains Miwok with

bows; and they supplied all of these groups with salt (Levy, 1978). (The Plains Miwok word for salt is actually borrowed from a Costanoan language.) In exchange, the Costanoans received pinyon nuts from the Yokuts and may have received clamshell disk beads from the Miwok. The Costanoans also fought wars, most often over disputed territories, with other Costanoan tribelets and with the Esselen, Salinan, and Northern Valley Yokuts (Levy, 1978).

As noted above, the hunting and gathering lifeway of the Ohlone was interrupted by the arrival of Euroamericans, who brought disease (including a 1833 malarial epidemic and 1837 smallpox epidemic, which killed a large percentage of Costanoans), dislocation (as most surviving Costanoans were brought to the Spanish missions), and cultural atrophy (as the Costanoans were Christianized and traditional lifeways no longer practiced at the missions). Mexicans and Americans took over much of the Costanoan lands during the 1830s and 1840s, securing land grants and claims to natural resources within these territories. Following secularization of the missions in 1834, many Costanoans and Miwok served as ranch hands to the Mexicans and Americans who had taken their land.

Historical Background

Recorded history in the project area begins with early Spanish exploration in the area and the arrival of missionaries. This was followed by the secularization of the missions and division of the lands in the project vicinity into a number of large ranchos, the development of an agricultural land use pattern, and the expansion of shipping during the Hispanic Period and continuing into the American Period. The TPP area is located partly in western San Joaquin County, north and west of Tracy, in the northeasternmost corner of Alameda County. The portion of San Joaquin County that lies south and west of the San Joaquin River was known as the “West Side”—an area slow to develop in the 19th century. As with most subareas of the greater San Francisco Bay Area, the immediate project area’s recorded history can be divided into three periods: the Spanish Period (1769-1822), the Mexican Period (1822-1848), and the American Period (1848-present). The agricultural land use pattern was eventually replaced with the arrival of rail transport and subsequent rapid urban expansion. Tracy is currently one of the fastest growing towns in California as it develops as a bedroom community for the cities of the San Francisco Bay area.

Hispanic Period

Spain claimed Alta California from 1542 when Cabrillo made his voyage of exploration. In the mid-1700s, the Spanish established defensive settlements along coastal Alta California to deter encroachment from Russian and British interests. An army garrison and Indian mission were established in San Diego in 1769 and another in Monterey in 1770. In 1772 Lieutenant Pedro Fages—the Commander of the Monterey Mission—was ordered to travel north from Monterey to San Francisco Bay to find a location for a new mission and presidio. This expedition was the first to explore lands in what is now Contra Costa County. An expedition traveled up the eastern bay shore to present-day Pinole where they turned east and followed the southern shore of Carquinez Strait and Suisun Bay, reaching what is now Antioch. From there, the expedition turned south through the San Ramon and Amador valleys, passing the

future site of Mission San Jose in what is now Fremont, and returned to Monterey. In March 1776, the Juan Bautista de Anza expedition followed Fages' path to Antioch and continued east to the plains of eastern Contra Costa County, then turned south toward Tracy and westward over the Coast Ranges back to Monterey. In fall 1776, Father Palou and Jose Joaquin Moraga founded a garrison and mission in San Francisco. Moraga later led a party of Spaniards over Altamont Pass and explored the San Joaquin Valley for 16 days.

Between 1778 and 1806, many San Francisco Bay Area Indians underwent missionization. While there is no record of Spanish troops penetrating east of Mount Diablo during this period, Spanish expeditions entered the Central Valley in 1806, 1808, 1810, and 1811, visiting Indian villages along the San Joaquin River and its tributaries. Most river-dwelling tribes of eastern Contra Costa County went to Mission San Jose between 1810 and 1812. The Bay Miwok were the first group in the project vicinity to be missionized, starting in 1794 and ending in 1827 (Levy, 1978). Both the Bay Miwoks and Yokuts were taken to a number of missions, including San Jose, Santa Clara, as well as missions further south at Soledad, San Juan Bautista, and San Antonio (Wallace, 1988). From that time until 1836, eastern Contra Costa County appears to have been uninhabited.

Spanish government policy was directed at the founding of presidios, missions, and secular towns with the land held by the Crown. In contrast, the later Mexican policy stressed individual ownership of the land (Garaventa, 1991). In the project vicinity, Father Jose Viader with Gabriel Moraga made two visits in 1810. On Union Island near Bethany, they found the Yokuts village of Pescadero ("fisherman") and later Rancho El Pescadero (35,556 acres), north of the project area received its name from this native settlement (Hoover, Rensch and Rensch, 1966). Governor Manuel Micheltorena granted this 8-square-league grant to Antonio M. Pico on November 28, 1843; the rancho was patented to Pico and Henry M. Naglee on March 10, 1865. This rancho name may have been after the *Rio del Pescadero*, a name used by Fernando de Rivera in December 1776, and believed to have been used in reference to the old channel of the San Joaquin River. The majority of this rancho is situated within San Joaquin County (35,454 acres) but also included acreage in Alameda (76 acres) and Contra Costa counties (16 acres). A deposition of 1852 indicates that hostile Indians prevented Pico from occupying the rancho until 1848 (US/ND, v.d). None of the known house locations were located in the very small portion of the rancho now within Alameda County. The rancho headquarters appears to have been located about midway down the west side of the rancho west of Old River and associated with a road proceeding from the northwest corner of the rancho southward past "*brazas*" (probably meanders of the river). No known historic structures dating to either the Spanish or Mexican periods are present in TPP area.

During the Mexican Period (1822 to 1846) and into the American Period, the project area was situated south of Rancho El Pescadero. The current Grant Line Road roughly follows the original Rancho boundary. The newly created Mexican government had to deal with secularization of the missions. Of the 21 missions, 10 were released in 1834, five in 1835, and the remaining six in 1836. While some resident Indians received land allotments, none retained their lands for more than a few years (Bean, 1994) with the result that most Indians

served as laborers on the ranchos spreading throughout Mexican California. Between 1834 and 1846, more than 800 land patents, comprising more than 12 million acres, were issued to individuals by the Mexican government. Under the rancho system, land outside of towns was considered valuable only for grazing purposes. Any citizen of good character could get a grant for a grazing tract. The grantee was required to submit a *diseno* (description and map) of the area he desired. By 1845, most of the land holdings were in the form of large ranchos.

American Period

Increasingly bad relations between the United States and Mexico led to the Mexican-American War of 1847, which resulted in Mexico releasing California to the United States under the Treaty of Guadalupe Hidalgo in 1848. Throughout the Spanish and Mexican Periods, land was abundant and settlers were few in number and land had minimal value. It was not until the American takeover of California in 1848 that land was coveted and valued. As early as March 13, 1847, the *California Star* published complaints about the good agricultural land claimed by a few *Californios* who held large ranchos. By the mid-19th century, most of the rancho and pueblo lands in California were subdivided as the result of population growth and the American takeover. California's rapid growth was attributed to the Gold Rush (1848), the completion of the transcontinental railroad (1869), and construction of local railroads. The original route of the Central Pacific Railroad over Altamont Pass, connecting San Francisco with the transcontinental railroad at Sacramento, runs at the north edge of the power plant site. The ROW was abandoned by the Southern Pacific Railway and is now owned by Alameda County. A fiber optic cable was recently installed in this ROW.

The TPP is partly located in the northeast corner of Alameda County, which was carved from parts of Santa Clara and Contra Costa counties in 1853. Byron (Byron Hot Springs), which is located northwest of the project area, was known to the local Native Americans and was used from 1849 onward by Euroamericans as a hot springs with healing qualities. The springs included 5 bathing and 15 drinking springs and 5 cottages with a capacity for 40 guests in its heyday. In addition to agriculturally focused towns and outliers, Mountain House was a notable 19th century settlement originally known as Zimmerman's (after the 1853 tavern owner) (Mosier and Mosier, 1986). Roads to and from Mountain House proceeded north to Martinez and beyond and to the south through the Altamont Pass into the Livermore Valley and points west. Later, Mountain House was still important with roads intersecting the railroad north with Mountain House Road and east with Grant Line Road (Mosier and Mosier, 1986). The original route of the trans-continental Lincoln highway followed Grant Line Road out of Tracy to Altamont Pass.

John and James Treadwell were developing coal and clay mines in Corral Hollow at the turn of the century. A coal mine had operated on the site briefly in the mid-nineteenth Century, and a new shaft was dug in 1894. The settlement that resulted was named Tesla for the electrical inventor, Nikola Tesla, because the Treadwells had planned to construct a coal-fired power plant there to supply power to surrounding communities. This power plant was never built, and the coal mines ceased operations in 1906.

Tesla was an early pioneer in high-voltage power generation and transmission and substantially responsible for many of the advances that made electrification possible. The effective alternating current systems he developed in the 1880's with Westinghouse were bitterly contested by Thomas Alva Edison, but proved superior to Edison's Direct Current machinery. Tesla became increasingly reclusive and eccentric in his later years, but continued to experiment on a grand scale. He claimed that he could "split the planet Earth like an apple", and to have developed a "death ray" capable of destroying 1,000 airplanes at a distance of 250 miles! Spectacular experiments, including creating 250 foot long lightning bolts and the wireless transmission of electric power, that were never brought into production, and the fact that his papers were (briefly) confiscated by the United States Government after his death provided prime fodder for conspiracy theorists. Today he is better known to many as the father of the flying saucer, anti-gravity and the death ray than as one of the brilliant inventors who made the electrification of the Twentieth Century possible. The TPP area is surrounded by wind turbine generators. The Altamont Pass area has one of the "most favorable wind regimes in the state of California", and since 1981 a large number of wind generators have been installed by private industry to produce power for sale to the Pacific Gas and Electric (PG&E) Company.

5.16.1.3 Resources Inventory

Inventory methods for the TPP consisted of archival research, an intensive pedestrian survey, architectural reconnaissance, and Native American consultation.

Archival Research Methods

Foster Wheeler Environmental conducted a record search at both the Northwest Information Center of the California Historical Resources Information System (CHRIS) at Sonoma State University in Rohnert Park for Alameda and Contra Costa counties and the Central California Information Center of the CHRIS at Stanislaus State University in Turlock for San Joaquin County. The searches, which included the project APE and areas within 1 mile of the APE, determined that some portions of the project area APE have been surveyed previously for cultural resources. The Northwest Information Center reported two archaeological sites (CA-ALA-432H, and 433H) to be located within the project vicinity. Fourteen individual investigation reports have been filed in the CHRIS archives for the portion of the project area lying within Alameda and Contra Costa counties. The Central California Information Center reported no cultural resources in the project area and 11 investigation reports for the portion of the project area lying in San Joaquin County. The abandoned Southern Pacific Railroad grade that runs north of the proposed power plant site has not been recorded, but has been assigned a site number (CA-SJO-250H) in San Joaquin County. Two previously identified cultural resources, and one new site are located near any proposed project facility or linear: CA-ALA-432H, 433H. These are all from the historic period and are described briefly below. No other city, county, state, and/or federal historically or architecturally significant structures, landmarks, or points of interest are located in or adjacent to the project.

In addition to reviewing available survey reports, lists of historic properties (e.g., the National Register of Historic Places, California Inventory of Historic Resources, California Points of Historic Interest, and California Landmark files were reviewed to locate historic archaeological sites within the project area. Project Staff studied USGS topographic maps and other historical maps to determine where unrecorded historic structures and features were located.

Field Survey

Pedestrian field survey of all Tesla project elements was conducted on June 25 to 27 2001 by Andrew Gorman, Jenna Farrell, and David Nelson of Foster Wheeler Environmental, using 20-meter intervals between survey transects. The proposed Ravenswood transmission line re-route was surveyed on September 9, 2001 by Andrew Gorman. Qualifications for field surveyors are provided in Appendix L-1. The entire project area is currently, or has in the past, been the subject of intense agricultural activity. Elements subject to intensive field survey included the power plant site location, transmission lines running between the power plant site and the Tesla Substation, a water supply pipeline running down Midway Road to the California Aqueduct, and a gas pipeline running along an existing pipeline ROW from Midway Road to a pumping station on Patterson Pass Road.

Tesla Power Project Site

The power plant site itself was surveyed by Andrew Gorman, Jenna Farrell, and David Nelson of Foster Wheeler Environmental on June 25, 2001. The proposed power plant site is a 60-acre parcel used for pasture. Surface visibility was 20 to 60 percent in heavily grazed pasture. There was a light scatter of random historic debris typical of agricultural land, and one concentration of late 19th century artifacts, Site A. There is a cattle loading chute and watering system at the edge of the property adjoining Midway Road that are in a poor state of repair. An "Aermotor" windmill provides water to a pre-cast concrete tank through a PVC pipe supply line. The chute is constructed with modern dimensioned lumber and wire nails and appears to be less than 45 years old.

Electrical Transmission Lines

The proposed transmission line runs roughly parallel to Midway Road to the Existing Tesla substation, one half mile south of the proposed power plant location. Approximately half of this distance is along an existing PG&E transmission line ROW. A pedestrian survey of the area was made on June 25, 2001 by Jenna Farrell and David Nelson of Foster Wheeler Environmental. Surface visibility was 20 to 60 percent in heavily grazed pasture. No artifacts were observed in the course of the survey. The proposed route runs within 200 feet of site CA-ALA-433H, but does not cross the site boundaries. There will be no project-related impacts.

Natural Gas Pipeline

The natural gas pipeline will run approximately 2.8 miles from Midway Road to an existing pumping station on Patterson Pass Road. The proposed route lies within an existing PG&E gas pipeline ROW known as line 107. A pedestrian survey of the proposed route was

conducted on June 26, 2001 by Jenna Farrell and David Nelson of Foster Wheeler Environmental. The 1.1-mile section between Interstate 580 and Midway Road was not surveyed because permission to access had not been granted by the landowner. The section between the California Aqueduct and the Delta-Mendota Canal had been graded to six (6) feet below original ground surface by an unrelated construction project. Construction activities by Teichert Construction were underway on the day of the survey. Surface visibility was 100% and no artifacts were observed. The section between Patterson Pass Road and the Delta-Mendota Canal was in a light grass cover, affording surface visibility of 20 to 60 percent. No artifacts were observed during any part of the survey.

Water Supply Line

The TPP will require the construction of a 1.7-mile long water supply line from the power plant site to the California Aqueduct. The line will run within the ROW of Midway Road for most of its length, crossing pasture land for the final connection to the aqueduct. A pumping station will be built on a ½-acre site adjacent to the aqueduct, but the final location has not been determined at this time. The surrounding land is a mix of pasture/windfarm and rural residential use. A pedestrian survey of the route was made on June 25, 2001 by Jenna Farrell and David Nelson of Foster Wheeler Environmental. Ground cover was a mix of thin weedy vegetation in the county ROW, landscaped residential front yards, and heavily grazed pasture. Surface visibility ranged from 20 to 60 percent. No artifacts were observed in the course of the survey.

Ravenswood Transmission Line Re-route

In conjunction with a planned expansion of the PG&E Tesla substation, a re-route of the Ravenswood Transmission line has been proposed. The new alignment will run roughly north to south at the west edge of the current PG&E substation. The length of the new segment is approximately one-quarter mile. This new alignment was surveyed on September 9, 2001 by Andrew Gorman of Foster Wheeler Environmental. Four parallel transects were walked along the proposed route at 15 meter intervals. North of Patterson Pass Road, the route crosses a roughly level area of heavily grazed pasture. The closely cropped vegetation gave a surface visibility of 80 to 100 percent. No artifacts were observed in the course of the survey. The new alignment originates at an existing tower of the Ravenswood transmission line. The tower carries 12 conductors and appears to be of recent construction. It sits on concrete piers set vertically in the ground that were cast in Sonotube concrete forms. The spiral pattern of the forms is clearly visible. A gravel pad, measuring approximately 35 x 70 meters is just south of the tower and connects with a gravel access road. The pad consists of a 6" layer of one-inch minus river gravel and is underlain with a layer of woven construction fabric, indicating recent construction. The route crosses two gravel access roads and three 5-strand barbed wire fencelines before crossing Patterson Pass Road. These fencelines are strung on metal T-posts and are of modern construction. There is no build up of sediments along these lines to indicate that they are older than 45 years. Patterson Pass Road itself has followed roughly the same alignment since the 19th Century, but since the lines will cross overhead there will be no impact.

South of Patterson Pass Road the proposed route enters a pasture on the PG&E property. A 10-meter wide firebreak had been recently disked at the West edge of the property, giving 100% visibility. A thin weedy cover with frequent rodent burrows and animal tracks gave 60 to 100% visibility in the remainder of the parcel. One piece of manganese glass was observed in the course of the survey, as well as several boreholes abandoned with bentonite. Isolated finds of historic debris are consistent with the field's agricultural use. A 5-strand barbed wire fence strung on metal T-posts encloses the field and appears to be of modern construction. No potentially significant cultural resources were encountered in the course of the survey. The re-route is not expected to have an adverse impact on cultural resources.

Architectural Reconnaissance

Homes, farmsteads, and commercial/industrial facilities older than 45 years are potentially significant historic resources in the project area. The project team did not observe any potentially significant historic buildings or structures within the proposed TPP site, water supply pipeline, electrical transmission, or gasoline. The TPP will deliver power to the PG&E Tesla substation, one half mile south of the proposed power plant. According to Mr. Ashis Sangupta, PG&E Senior Engineer for Substation Management, the substation was originally built in the early 1950's as part of PG&E's general expansion and improvement of service. Since that time, like all active power transmission facilities, it has been continually upgraded, redesigned, and reconstructed. A major reconstruction is currently underway at the substation. The substation appears on the 1953 USGS Midway quad map, but occupies less than a quarter of its current area.

The Altamont Speedway, an automobile racetrack lies at the edge of the *water supply pipeline* APE. It has been in operation since the 1930's but has been extensively reconstructed since that time. It is best known outside the racing community as the site of a disastrous concert by the Rolling Stones and the Jefferson Airplane in 1967, which ended with the stabbing death of a spectator by the Hell's Angels security guards. Despite this notoriety, the track is not on any Federal, State, or Local registers. The track and its associated buildings are set one-quarter mile back from Midway road, and there will be no impacts from project related construction.

There are 10 residences located along Midway Road. All appear to have been built within the past 45 years, and all are set back from the road ROW. Outbuildings inspected in the course of the survey were of recent construction, utilizing modern dimensioned lumber, wire nails, and plywood. Midway Road will maintain its rural residential character following the water supply pipeline installation, and there will be no project-related impacts.

5.16.1.4 Results-Archival Research and Field Survey

Archaeological Sites

The Tesla Power APE comprises an area 0.25 miles around the power plant site and 65 feet on either side of the natural gas pipeline route and transmission line. One new archaeological site was found within the project APE during the Tesla Power survey. Archival research located two previously known sites within the APE. None of the surveys on file conducted in and near

the proposed project area had located any significant cultural resources beyond the two previously recorded sites.

Site A

Site A is a small (approximately 6-meter-diameter), but relatively dense scatter of late nineteenth century artifacts on a slightly sloping area near the south edge of the plant footprint. Most of the artifacts on the surface had been exposed by extensive rodent activity. Artifacts included applied lip bottles, an oyster shell, a stoneware bottle base marked "Ort Dundas Pottery Co., Glasgow", a copper makers plate reading "Made and Guaranteed by the Davis Carriage Co. Carriage Builders Cincinnati Ohio", scraps of leather harness, manganese glass, and burnt glass. Five 20 cm-diameter posthole tests were excavated to define the limits of the site. PHT 1 was placed in the approximate center of the concentration between two large rodent burrows. One of the burrows had exposed several 30 to 40 cm-diameter rocks, while the other had exposed a piece of milled lumber 25 cm below ground surface. Four additional tests were placed 3 meters away from and in the cardinal directions from the center. Artifacts were mainly confined to the top 20 cm, and included quantities of square nails and burned earth. PHT-1 produced a quantity of small (6-25cm) limestone rocks at 40 cm BGS, but no traces of mortar were observed. Artifacts from the tests were backfilled, and the surface collection re-randomized and left on site. All of the artifacts date to the terminal decades of the 19th century.

A search of historic atlases and maps did not show any structures on this site in 1878, 1914, 1916, or 1953. Other than bottles and burnt glass, there was little domestic debris found on site. The small amount of material found would indicate a trash dump rather than a structure or occupation site. Although the site is limited in size and density, the possibility exists that intact subsurface features such as a privy may be present. It is recommended that archaeological monitoring take place during the initial grading or topsoiling in the area of Site A to determine if potentially significant features are present. A formal site record is being prepared for this site, and will be submitted to the CHRIS center in Rohnert Park, California.

Archaeological Site CA-ALA-432H. This site is an historic house site recorded by G. Maniery and C. Peeler on February 26, 1980. It consisted of a fence, and olive tree windbreak and a scatter of historic material. The site is located immediately across Patterson Pass Road from the PG&E Tesla substation, and 500 feet west of the proposed transmission line. The site appeared to have been deliberately demolished in recent times and the debris hauled off to another location. A very light scatter of modern debris was visible, but no foundations or surface features. This site will remain unaffected by project construction and operation, and no impacts will occur.

Archaeological Site CA-ALA-433H. This is an historic homestead, reported by Maniery and Peeler on February 28, 1980. It consists of an olive tree windbreak two concrete foundations and a scatter of historic rubble. It is located across Patterson Pass Road from the PG&E Tesla substation, and approximately 200 feet from the proposed transmission line route. A site visit on June 26, 2001 found that the site had recently been disked, and only one of the foundations

mentioned in the site report was still extant. A very light scatter (3-4 pieces) of modern debris and a single possibly introduced rock were visible on the surface. This site will remain unaffected by project construction and operation, and no impacts will occur.

Native American Consultation

Foster Wheeler Environmental contacted the NAHC by letter on May 14, 2000, requesting information about traditional cultural properties such as cemeteries and sacred places in the project area (see Appendix L-2). The NAHC responded that a search of the sacred lands file did not indicate the presence of Native American cultural resources in the immediate project area. A list of Native American groups or individuals that may have knowledge regarding traditional cultural properties and sacred places in the project area was provided, and these individuals and groups were contacted by letter on July 3, 2001. No responses have yet been received. Copies of the letters and responses are included in Appendix L-3, Confidential Report.

5.16.2 Environmental Impacts

5.16.2.1 Significance Criteria

Appendix G of CEQA addresses significance criteria with respect to cultural resources (Public Resources Code Sections 21000 et seq.). Appendix G(V)(a,b,d) indicates that an impact would be significant if the project will:

- Cause a substantial adverse change in the significance of a historical resource.
- Cause a substantial adverse change in the significance of an archaeological resource.
- Disturb any human remains, including those interred outside of formal cemeteries.

5.16.2.2 Construction Phase Impacts

Power Plant Site

Because the power plant site is located on an exposed hill at some distance from a water source and no indication of prehistoric resources were evident from site surveys, it is considered to have very low sensitivity for prehistoric cultural resources. Construction of the project is not expected to have the potential for impacts to prehistoric resources.

The field survey for this project located one historic site in the proposed power plant area, designated Site A. Although the site is limited in size and density, the possibility exists that intact subsurface features such as a privy may be present. Although construction of the project is not expected to have the potential for impacts to historic resources, it is recommended that archaeological monitoring take place during the initial grading or topsoil removal in the area of Site A. If additional resources are discovered during construction, the mitigation measures outlined in Section 5.16.4 can be implemented to ensure that there will be no significant impacts.

Natural Gas Pipeline

No archaeological sites or historic resources have been located within the APE of the proposed natural gas pipeline, either through archival research or pedestrian surveys for the TPP.

Water Supply Pipeline

No archaeological sites or historic resources have been located within the APE of the proposed water supply pipeline, either through archival research or pedestrian surveys for the TPP.

Transmission Line

No archaeological sites or historic resources have been located within the APE of the proposed transmission line, either through archival research or pedestrian surveys for the TPP.

5.16.2.3 Operation Phase Impacts

Impacts to cultural resources are not anticipated during operation of the proposed facility. Operation and maintenance of the natural gas pipeline, transmission line, and water supply pipelines will not cause any impacts to cultural resources..

5.16.3 Cumulative Impacts

Since the project would not affect known significant cultural resources, it would not be likely to cause significant cumulative impacts.

5.16.4 Mitigation Measures

Preconstruction Assessment and Construction Training. The project archaeologist and archaeological monitor will visit the project area before construction begins to become familiar with the site conditions. As construction begins, the project archaeologist will conduct a worker education session for construction supervisory personnel to explain the importance of and legal basis for the protection of significant archaeological resources. This worker education session can take place at the same time as the paleontological training session (Section 5.17) since both disciplines will involve the monitoring of excavation activities (although in different areas). Information about archaeological resources may be combined with information about cultural resources in the training brochure that will be distributed to construction supervisory personnel.

Construction Monitoring. The archaeological monitor should be present at the construction site when mechanical excavation is taking place near sensitive areas. The monitor's role will be to watch for buried archaeological deposits during excavation.

If the archaeological monitor identifies archaeological resources during construction, he or she should immediately notify the project archaeologist and site superintendent, who should halt construction in the immediate vicinity of the find, as necessary. The site superintendent and archaeological monitor will use flagging tape, rope, or some other means as necessary to delineate the area of the find within which construction will halt. This area should include the

excavation trench from which the archaeological finds came as well as any piles of dirt or rock spoil from that area. Construction should not take place within the delineated find area until the project archaeologist, in consultation with the CEC staff, can inspect and evaluate the find.

If human remains are encountered during construction, project officials are required by law (California Health and Safety Code 7050.5) to contact the county coroner. If the coroner determines that the find is Native American, the coroner is required to contact the NAHC. The NAHC is required (Public Resources Code 5097.98) to determine the Most Likely Descendant, notify that person, and request that they inspect the burial and make recommendations for treatment or disposal.

If human remains are encountered on federally owned land (within the San Francisco Bay National Wildlife Refuge), the USFWS is required to begin negotiations under the Native American Graves Protection and Repatriation Act to repatriate the remains to a lineal descendant or a culturally affiliated organization.

Site Recording and Evaluation. The project archaeologist and archaeological monitor should follow accepted professional standards in recording any find. They should submit the standard Department of Parks and Recreation historic site form (Form DPR 523) and locational information to the Northwest Information Center of the California Historic Resources Information System at Sonoma State University, Rohnert Park.

If the project archaeologist determines that the find is not significant, construction will proceed. If the project archaeologist determines that further information is needed to determine whether the find is significant, the CEC and State Historic Preservation Officer (SHPO) will be notified, and the consultant will prepare a plan and a timetable for evaluating the find, in consultation with the CEC and SHPO.

Mitigation Planning. If the project archaeologist and the consulting parties (the CEC and SHPO) determine that the find is significant, they should prepare and carry out a mitigation plan in accordance with state and federal guidelines. This plan should emphasize the avoidance, if possible, of significant archaeological resources. If avoidance is not possible, the recovery of a sample of the deposit from which the archaeologist can define scientific data to address archaeological research questions should be considered an effective mitigation measure for damage to or destruction of the deposit.

The mitigation program, if necessary, should be carried out as soon as possible to avoid construction delays. Construction should resume at the site as soon as the field data collection phase of any data recovery efforts is completed. The project archaeologist will verify the completion of field data collection by letter to The Applicant and the CEC-PM so that The Applicant and the CEC-PM can authorize for construction to resume.

Curation. The project archaeologist will arrange for the curation of archaeological materials collected during the monitoring and mitigation program at a qualified curation facility, that is, a recognized, nonprofit archaeological repository with a permanent curator. The archaeologist

shall submit field notes, stratigraphic drawings, and other materials developed as part of the archaeological excavation program to the curation facility along with the archaeological collection.

Report of Findings. If buried archaeological deposits are found during construction, the archaeologist will prepare a report summarizing the monitoring and archaeological investigatory program implemented to evaluate the find or to recover data from an archaeological site as a mitigation measure. This report should describe the site soils and stratigraphy and describe and analyze artifacts and other materials recovered and explain the site's significance. This report should be submitted to the curation facility with the collection.

Project Archaeologist/Archaeological Monitor Qualifications. The project archaeologist should meet the minimum qualifications for principal investigator on federal projects under the *Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation*. The archaeological monitor should hold a Bachelor of Arts degree in anthropology with an emphasis in archaeology and have at least one year of experience conducting archaeological field projects, or have five years of experience conducting archaeological field projects. The archaeological monitor is qualified to detect archaeological deposits in the field. The project archaeologist is qualified, in addition to site detection, to evaluate the significance of the deposits, consult with regulatory agencies, and plan site evaluation and mitigation activities.

Mitigation Effectiveness. Implementation of the above mitigation measures would lower any potential project impact to archaeological resources below the threshold of significance.

5.16.5 Applicable Laws, Ordinances, Regulations, and Standards (LORS)

The CEC environmental review process under the Warren-Alquist Act is considered functionally equivalent to that of the California Environmental Quality Act (CEQA) (California Code of Regulations [CCR] 21000 *et seq.* [statute] and Public Resources Code [PRC] 15000 *et seq.* [CEQA guidelines]) with respect to cultural resources. CEQA and its implementing regulations state that "Public agencies will seek to avoid damaging effects on an archaeological resource whenever feasible."

The PRC and CCR provide statutes and guidelines for lead agency compliance with CEQA when evaluating potential effects on historical resources. For example, CCR §21083.2 *Significant Effect on Archaeological Resources* addresses the evaluation of potential projects on archaeological resources and defines the term "unique archaeological resource." The PRC, Title 14, §15064.5 *Determining the Significance of Impacts to Archaeological and Historical Resources* lists the criteria for the California Register of Historical Resources and defines the meaning of significant impact for historical and archaeological resources.

If a county coroner were to determine that human remains discovered on project lands were Native American, Section 7050.5 of the California Health and Safety Code and Section 5097.98 of the Public Resources Code would apply. These laws require that the county coroner notify the NAHC when a Native American grave is found. The NAHC would then identify a most likely

descendant to inspect the burial site and make recommendations for treatment or disposal. Table 5.16-1 lists the applicable cultural resources LORS for the project.

5.16.6 Involved Agencies and Agency Contacts

Table 5.16-2 lists the state agencies involved in cultural resources management for the project and lists a contact person at each agency. These agencies include the Native American Heritage Commission, which would be a consulting party in case human remains are found that are prehistoric or historic-era Native American in origin. The California Office of Historic Preservation (OHP) is also listed. This agency is responsible for management of the state and federal historic preservation programs in California. If properties potentially eligible for listing in the California Register of Historical Resources were discovered during construction, the OHP might wish to be a consulting party. Since the project involves federal permitting (Air Quality Prevention of Significant Deterioration Permit), the OHP would become involved in the event of a significant archaeological find.

Table 5.16-1. Applicable Cultural Resources LORS

Law, Ordinance, Regulation, or Standards	Applicability	Is Mitigation Effective ?	AFC Reference
CEQA Statute: California Public Resources Code, Division 13, Chapter 2.6, Section 21083.2 "Archaeological Resources"	Construction may encounter buried archaeological sites	Yes	Sections 5.16.2.1 and 5.16.5
CEQA Guidelines: California Code of Regulations, Title 14, Section 15064.5 "Determining the Significance of Impacts on Archaeological and Historic Resources"	Construction may encounter buried archaeological sites	Yes	Section 5.16.2.1, 5.16.5
CEQA Guidelines: California Code of Regulations, Title 14, Section 15126.4(b) "Mitigation Measures Related to Impacts on Historical Resources"	Project construction may encounter archaeological resources	Yes	Sections 5.16.4 and 5.16.5
California Health and Safety Code, Section 7050.5	Construction may encounter Native American graves, coroner calls NAHC	Yes	Sections 5.16.4 and 5.16.5
California Public Resources Code, Section 5097.98	Construction may encounter Native American graves, NAHC assigns Most Likely Descendant	Yes	Sections 5.16.4 and 5.16.5

Table 5.16-2. Involved Agencies and Agency Contacts

Agency/Address	Contact/Telephone	Permits/Reason for Involvement
Native American Heritage Commission 915 Capital Mall, Room 364 Sacramento, CA 95814	Ms. Debbie Treadway Associate Government Program Analyst (916) 653-4038	Native American traditional cultural properties and human remains.
California Office of Historic Preservation P.O. Box 942896 Sacramento, CA 94296-0001	Dr. Knox Mellon State Historic Preservation Officer (SHPO) (916) 653-6624	California Register of Historical Resources and/or Federal agency NHPA Section 106 compliance (if emergency discovery with federal permit involvement).

5.16.7 Permits Required and Schedule

There is no federal, state, or local permits specific to cultural resources management.

5.16.8 References

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